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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|------------------------|----------------------|
| 10/667,131 | 09/22/2003 | Sangjoon Hahn | 249/408 | 7176 |
| 7590 | 01/14/2005 | | EXAMINER [REDACTED] | BUI, BRYAN |
| LEE & STERBA, P.C. Suite 2000 1101 Wilson Boulevard Arlington, VA 22209 | | | ART UNIT [REDACTED] | PAPER NUMBER 2863 |

DATE MAILED: 01/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------|--------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/667,131 | HAHN ET AL. |
| | Examiner | Art Unit |
| | Bryan Bui | 2863 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 22 September 2003.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-13 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-10 and 13 is/are rejected.

7) Claim(s) 11 and 12 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/04&4/04.
4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
5) Notice of Informal Patent Application (PTO-152)
6) Other: ____.

DETAILED ACTION

Claim Objections

Claims 11-12 are objected to because of the following informalities: There is no transitional phrase in claim 11 (see MPEP 2111.03). Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-10, 13 are rejected under 35 U.S.C. 102(b) as being anticipated by J. Chen et al (A new approach to Near-infrared spectra data analysis using Independent Component analysis; J. chem. Inf. Comput. Sci. 2001, 41, pages 992-1001) .

With respect to claim 1, J. Chen et al teach a method of estimating a pure spectrum and concentration of each (separate the spectra of the constituent components from the sample mixture $x_1(t)$, $x_2(t)$) component constituting sample mixtures with kind of component A, B are mixed (page 992, and figure 1, page 995) comprising: performing a principal component analysis (PCA) of the spectral of the n mixtures ($x_1(t)$, $x_2(t)$), which are using m wavelengths (λ wavelengths) to represent the spectra of the mixtures as factors (extract components or decompose the spectra into the principal components in any numbers/symbols in mathematic, for example: scaling score matrix) and scores of the respective factors (page 993, section 2.3 and pages

994-996, under sections 3.2, 3.3); performing an independent component analysis of the scores obtained (page 993, left column, second paragraph) to estimate the pure spectra and the concentrations of the respective component (page 992 and pages 994-996, under sections 3.2, 3.3). The sample mixtures (n), component mixed (p) and wavelengths (m) are integers with m greater than p is inherently known in the art (see equation 6, page 995).

With respect to claims 2-4, J. Chen teach the number of factors (extract components or decompose the spectra into the principal components in any number/symbols in mathematic, for example: scaling score matrix) is decided and the independent component analysis (ICA) is applied to the scores of the of the decided factors, and wherein the concentration of the components constituting the mixture are statistical independent (pages 994-996, sections 3.2, 3.3).

With respect to claim 5, J. Chen teach performing the independent component analysis of the scores of factors (scaling score matrix) into a mixing matrix and independent components to estimate the pure spectra of respective components based obtained factors and mixing matrix (page 993, section 2.3, A= SF, and page 994, section 3.2 and equation 6) and estimating the independent components as being proportional to the concentrations of the components contained in the mixture (pages 994-996, sections 3.2, 3.3, pages 999-1000).

With respect to claim 6, J. Chen teach deciding the number of factors in pages 994-995 (extract components or decompose the spectra into the principal components in any number/symbols in mathematic, for example: scaling score matrix); performance

the independent component analysis (ICA) of the scores of the decided factors to decompose the score into mixing matrix (scaling score matrix) and independent components,(pages 994-996, sections 3.2, 3.3) to estimate the pure spectra of respective components based obtained factors and mixing matrix (page 993, section 2.3, A= SF, and page 994, section 3.2 and equation.6) and estimating the independent components as being proportional to the concentrations of the components contained in the mixture (pages 994-996, sections 3.2, 3.3, pages 999-1000).

With respect to claim 7, J. Chen teach in pages 994-996, sections 3: "Independent component analysis", the ICA performance by a technique selected from group consisting of: maximization of non-gaussianity, etc.

With respect to claims 8-10, J. Chen teach indicate a model of multivariate regression with low-noise band (linear regression method in calibration) as an analysis band, and performing a technique (multivariate regression) to remove the scattering and noise before performing PCA of the spectra of the sample mixtures using wavelength (page 993), and page 992 teach a preprocessing techniques selected from group consisting of multiple scatter correction, etc.

With respect to claim 13, the limitations of the claimed apparatus is encompass with the limitations of the claimed method. Therefore, the apparatus, claim 13 is rejected as set forth the same manner in the rejection of claimed method.

Allowable Subject Matter

3. The following is a statement of reasons for the indication of allowable subject matter:

Claims 11-12 are indicating allowable over the prior art of record (must be overcome the objection), because the prior art discloses the technique of the claimed invention, but the prior art does not expressly discloses the instructional functions corresponding between a first program and a second program in computer-readable program.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan Bui whose telephone number is 571-272-2271. The examiner can normally be reached on M-Th from 7am-4pm, and Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E Barlow can be reached on 571-272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BB

1/13/05

BRYAN BUI
PRIMARY EXAMINER

